

Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY ♦ FACILITIES DEPARTMENT NEWSLETTER

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1999

WOW—A SAFETY PROGRAM THAT WORKS

Workers Observing Workers (WOW), Facilities' behavior-based accident prevention program, will soon begin its third year, and its benefits have become obvious to all who have participated.

"I really don't know how we got along without WOW before," says Mike Miller, Facilities carpenter and

former head of the WOW Steering Committee. "It gets results, but even beyond that, it's changed the way a good many people think about safety, or think about themselves in relation to safe work activities."

The purpose of WOW is to reduce accidents and injuries through peer observation and positive feedback, creating a work culture committed to an accident-free workplace. Every month, each employee is observed on the job for 15 to 20 minutes by another employee, or "coach," who has already been observed and trained in proper safety behavior. The employee (who is not identified by name) receives a score and constructive feedback from the coach. The score goes toward a group score for an entire craft or discipline.

The goal is to chart and see safety improvement from month to month. WOW has achieved this goal quite decisively. "As of this past month," says Miller, "we have reduced our accident rate by 25 percent since the middle of last year. Over the same period, we have reduced workers' comp costs by 50 percent."

"But I think the most profound effect of the WOW program is the way people who've been

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Safety consultant Norma Drown and EH&S Coordinator Bill Birbeck will assist in expanding the WOW program. (Photo by Roy Kaltschmidt)

RADIO COMMUNICATIONS SYSTEM DUE FOR UPGRADE

Lately, Chuck Taberski and Glenn Skipper have been spending their time figuring out how to make a virtue of necessity. Taberski, the Facilities project manager for the Radio Communications System Upgrade Project, and Skipper, a communications engineer in the Engineering Division, have been working together on Berkeley Lab's response to a recent federal law that requires all government users to cut by half the radio-frequency bandwidth used by their transmitters. Radio spectrum has become very scarce due to the large number of users and the auctioning of parts of the government radio spectrum to the public for personal communications systems (PCS), pagers, and other applications.

As soon as these new requirements were known, the Engineering Division designed and proposed a digital trunked radio system that would both satisfy the bandwidth reduction requirements and improve the spectrum usage efficiency for Berkeley Lab's radio system. The entire system must be upgraded and replaced because it consists of mostly obsolete, analog radios that communicate directly from one point to another without

repeaters. In addition, the system has poor site coverage and dead spots, and is seismically vulnerable.

Facilities' and Engineering's plan uses a fully digital trunked radio system consisting initially of five repeaters, system management terminals, and new mobile and portable radios. The system will also be connected through an existing microwave link to Lawrence Livermore National Laboratory's new digital trunking network. This will give both

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WOW

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observed, who've gone through the process, now take ownership of safety," Miller says. "They have a new sense of responsibility."

The WOW process has identified hazards never properly understood before. "We noticed in our observations that people were often not wearing safety glasses when performing activities that required them," Miller says. "When we asked people about this, they gave us a

number of reasons: the glasses were too heavy, too ugly, didn't fit. People also legitimately didn't want to keep them on when they were doing activities that didn't require them, but they still needed to have them around for when they resumed work that called for eye protection." Armed with this information, the WOW Steering Committee pushed for new safety glasses, in different sizes, that were lighter and more attractive than the old ones. "We also got them with croakies, so that they would hang around people's necks and thus be 'right there' when people needed them again. Use of

safety glasses has gone up dramatically since the new ones came in."

Although WOW has been successful so far, Miller feels there is plenty more for the program to accomplish, and plenty of room for improvement. "We want more people to become coaches, to take on leadership of the process." So far, a third of Facilities Department employees have had coach training. Over the next couple of years, the rest of the department will be trained, including middle management.

The WOW Steering Committee recently began a pilot project that concentrates on safety for office workers. "It's surprising how many safety issues come up in offices," says Miller. "Some of the problems are ergonomic, but many of them are just a result of bad habits that people have gotten into. A comprehensive safety program needs to address this part of the workforce, too." Facilities employees working on this project include Dick Baker, Mary Oxnam, Nick Peterson, Betsy Reyes, Lisa Sloan, and Marylynn Wilkinson.

The WOW program has attracted the attention of other national laboratories, including SLAC, LLNL, and ORNL. While proud that WOW is seen as a model, Miller emphasizes that simply copying the structure and transplanting it to another location won't work. "Each organization has to develop its own peer-driven safety program. It won't happen if employees feel it as a 'top-down' pressure rather than something they agree among themselves to do. We have a start here, but we'll only stay successful if we retain broad participation—and enthusiasm—at every level."

Safety consultant Norma Drown, of Behavioral Science Technology, Inc. (BST) will assist the WOW Steering Committee in expanding the program's scope. She has high praise for the effort thus far.

"This group—without any outside help—has created a very good behavioral process," says Drown. "You have done something you should be proud of."

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FROM THE FACILITIES MANAGER...

We are a little late with this issue, but it gives me the opportunity to comment on the OSHA pilot inspection now in progress. At the daily closing conferences, the inspection team has been very complimentary of Facilities employees. The WOW program has been mentioned specifically, as well as the fact that everyone knows they have the right to stop a job in an

unsafe situation. The inspection team includes representatives from CAL-OSHA and FED-OSHA. After the inspection of the shops, one inspector stated that the Carpenter Shop was "top notch."

Speaking of safety, Bill Birbeck has joined us as EH&S Coordinator, taking over from Don Van Acker. He will advise the WOW Steering Committee and run the department safety programs, such as cross-shop inspections. Loretta Valentine will continue to run the construction safety program.

The budget this year will be a little tighter than we might hope. The Laboratory is investing in future savings by consolidating leased space. We will start moving from Hinks to Berkeley Towers in late February or early March and then continue with the Promenade. The fate of the Dymo building is undecided, as our need for lab space continues to exceed availability. It appears unlikely that we will get a new MEL-FS start for next year, because of accumulated mortgages. However, it appears promising that we will get a project in FY2001.

As usual, the shutdown went smoothly. We are grateful to those who worked through the holiday to complete maintenance while normal operations would not be effected.

A HAPPY AND PROSPEROUS 1999 TO ALL.

Bob Camper

Work SMART...

WORK SAFELY...

If it is not safe, STOP the work.



FACILITIES DEPARTMENT

Facilities provides Berkeley Lab with a full range of architectural and engineering, construction, and maintenance services for new facilities and for modification and support of existing facilities.

Architectural and engineering services include facility planning, programming, design, engineering, project management, and construction management. Maintenance and construction functions include

custodial, gardening, and lighting services; operation, service, and repair or replacement of equipment and utility systems; and construction of modifications, alterations, and additions to buildings, equipment, facilities, and utilities. Additional services include bus and fleet management, mail distribution, stores distribution, and property disposal.

Ongoing Facilities activities include renewal and upgrade of

site utility systems and building equipment; preparation of environmental planning studies; in-house energy management; space planning; and assurance of Laboratory compliance with appropriate facilities-related regulations and with University and DOE policies and procedures.

The Work Request Center expedites facility-related work requests, answers questions, and provides support for facility-related needs.

FOCUS ON SERVICE: VACUUM PUMP REPAIR SHOP

Vacuum systems at Berkeley Lab come in many shapes and sizes, as plant maintenance technician Bill Chism can attest. Bill installs, services, repairs, and also does design updates of vacuum systems for many scientific users. As he explains, "Most vacuum systems on the Hill are one-of-a-kind systems designed by the experimenters themselves. There are many applications—from coaters for mirrors and microchips to lasers and beamlines—and just as many configurations."

The work of maintaining and repairing this wide assortment of vacuum pumps and systems is rarely routine. Doing it correctly requires the

kind of specific knowledge available from the Facilities Vacuum Pump Repair Shop.

The Vacuum Pump Repair Shop repairs and rebuilds a wide variety of mechanical pumps, including models from Alcatel, Varian, Precision, Edwards, Leybold, Welch, and Stokes. The shop also provides required preventive maintenance for DOE equipment through the Facilities Preventive Maintenance System.

Chism stresses the importance of preventive maintenance. "Too often," he says, "I get a call from the user only after a system has failed." Chism adds that, although required only for DOE-owned equipment, the database tracking and scheduling provided by the

Preventive Maintenance System is available to user groups, and, unlike most off-hill services, Facilities can tailor each maintenance schedule to the needs of the user group.

A decrease in the vacuum a mechanical pump can achieve is a good indication that it's time for maintenance or repair. You can test this by connecting a gauge to the pump intake and operating the pump until the highest vacuum reading is obtained. A decrease in the vacuum attainable or increase in the time it takes to achieve your operating vacuum indicates a decrease in the pump's efficiency.

The most common reason for losses in efficiency is contamination
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COMPLIMENTS

Todd Hansen of the Office and Planning and Communication, and Deputy Laboratory Director Pier Oddone, send their appreciation to Planning's Dan Kevin and Jeff Philliber for their "splendid accomplishment" in processing 69 LDRD FY99 projects in only three weeks.

Building 70A Manager David Wilson gives high marks to Jaime Abenojar for the successful completion of work on the Bldg70/70A LN Storage Tank and distribution system. "His attention to details, pre-planning, and assembling of parts and equipment ahead of time allowed for a great deal of work to be completed during a short window of opportunity."

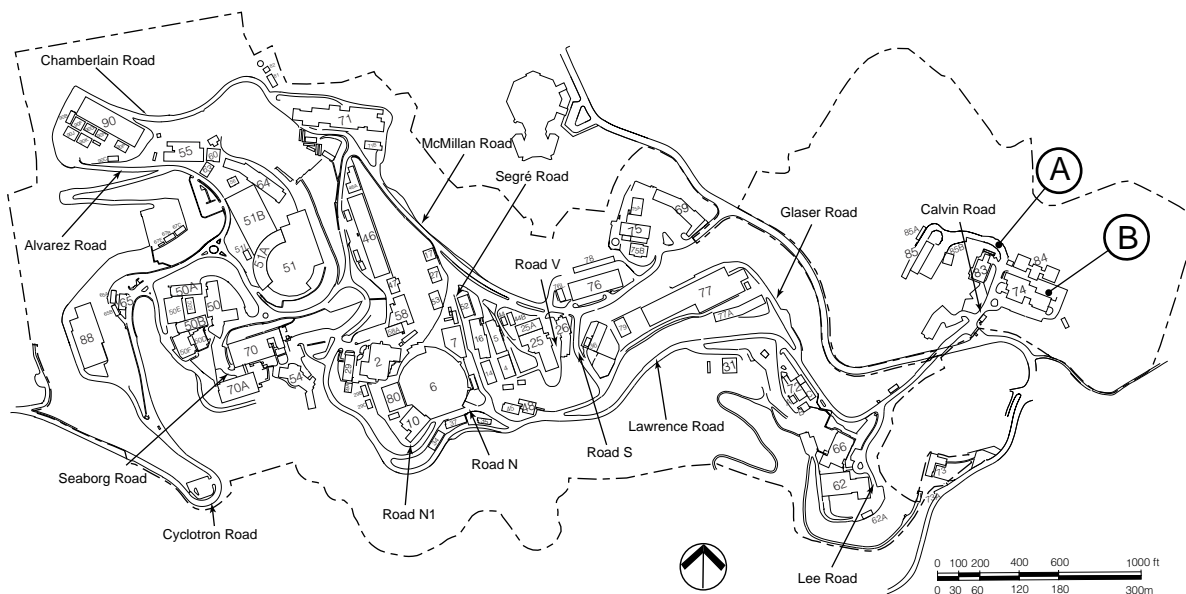
WORK REQUEST CENTER

Telephone	6274
Fax	7805
E-Mail	WRC@lbl.gov
Mailstop	76-222

WRC welcomes questions or comments about Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

Calvin Crib Wall Replacement

A	Calvin Crib Wall Replacement		
	JAN	FEB	MAR

Work on a storm-damaged crib wall will be completed in January. Calvin Road to and from Building 85 will be barricaded until then, with single-lane traffic control. (Bill Wu, x5216)

Bldg 934 Relocations to Bldg 74

B	Bldg 934 Relocations to Bldg 74		
	JAN	FEB	MAR

Laboratory renovations on the third floor of Building 74 will begin in January. Parking spaces behind Building 74 will be used by the contractor. (Richard Stanton, x6221)

"CAUTION—CONSTRUCTION AREA"

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Bldg 74: Rehabilitation of Building Systems

This project will upgrade Building 74 mechanical and electrical systems, provide seismic upgrade of the structure, and bring architectural features up to code. As part of the project, the Building 84 utility center will be expanded to accommodate Building 74 utilities, including relocated mechanical equipment and new electrical switchgear. This project is under consideration for FY2001 funding. (Richard Stanton, x6221)

Sitewide Water Distribution Upgrade, Phase 1

Much of Berkeley Lab's fresh water supply system has been in place for over 30 years. This project will replace about 0.9 mile (1.5 km) of cast iron pipe and upgrade the remaining 5 miles (8 km) of pipe with corrosion protection, new valves and pressure reducing stations, improvements to an existing water storage tank, and a new water storage tank in the East Canyon area.

Facilities will prepare an updated conceptual design report for FY2001 funding consideration. (Charles Allen, x6438)

Bldg 62: Upgrade of Building Systems

With 55,265 sq ft (5,135 sq m) of space, Building 62 is one of Berkeley Lab's largest multipurpose laboratory facilities. This project will expand wet chemistry capacity with new fume hoods, centralized exhaust, and an acid waste neutralization system. Other improvements will include modifications to the HVAC system, variable air volume (VAV) controls in the laboratories, an expanded low-conductivity water (LCW) system, electrical upgrades, and a new standby generator. The project will also make structural and architectural improvements. The conceptual design report for this project will be prepared this year for FY2001 funding consideration. (Richard Stanton, x6221)

IN PROGRESS

funded projects

Bldg 6: Laboratory and Office Buildout

This project will build out approximately 12,000 sq ft (1,100 sq m) of laboratory, office and research support space in the existing unfinished area on the second floor of Building 6. (Richard Stanton, x6221)

Bldg 51: First Floor Space Conversion—North

The Superconducting Magnet Group will occupy approximately 5,500 sq ft (510 sq m) in the north end of Building 51. This project is providing space conversion, additional electrical power, lighting, fire protection, piping for mechanical systems, and a bridge crane. The project also includes demolition of existing outdated and abandoned equipment and relocation of other equipment. (Lonny Simonian, x6088)

Bldg 62: Third Floor Alterations and Moves

Modifications to the third floor of Building 62 will convert the space for use by Life Science Division researchers. (Richard Stanton, x6221)

Bldg 70A: Supply Air Fan Installation

This project will provide a new supply air fan for Building 70A. (Charles Allen, x6438)

Bldg 70A: Actinide Laboratory Upgrade

This project includes installation of a High Efficiency Particulate (HEPA) filtration system on fume hoods belonging to the Actinide Group. (Lonny Simonian, x6088)

JGI Production Sequencing Facility

Located in existing buildings in Walnut Creek, California, this 62,600 sq ft (5,800 sq m) facility will house the automated DNA sequencing operations of the Joint Genome Institute (JGI). Building 100 is now occupied and in use by JGI. Building 400 design is underway, with completion scheduled for March 2000. (Kirk Haley, x5973)

COMMUNICATIONS

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laboratories extended coverage around the Bay Area and save Berkeley Lab thousands of dollars by sharing the existing control systems at Livermore.

The project's goal for FY1999 is to complete the conceptual design of the system, including an unmanned radio communication shelter, a backup generator, and an adjacent stand-alone antenna tower.

The new building and antenna tower will be located on a hill overlooking the lab, west of the Lawrence Hall of Science. "We favored that location," says Taberski, "because it was on a saddle between the Blackberry and Strawberry Canyon sections of Berkeley Lab that will provide better communications across the Laboratory."

The digital radios use state-of-the-art digital voice encoding and replication techniques. This results in reducing the transmitter bandwidth from 25 kHz to 12.5 kHz and, because of built-in digital error correction, provides better voice quality than the old analog radios.

Trunking is a sophisticated channel

sharing scheme that uses radio spectrum more efficiently. Unlike a dedicated-channel radio system that makes you wait in line even if other channels are free at the moment, a trunking technology switches radio users to whatever channel is free at the moment. You might, over the course of a conversation, utilize all four channels without ever knowing it.

The system's five repeaters—special radios with the receiver directly connected to a high power transmitter—will greatly improve site coverage. The repeater receiver will pick up the weak signal from a portable or mobile radio and instantly retransmit it at a much higher power.

Reliable radio communication is extremely important for the Lab. Radios are used not only in the everyday operations of groups such as Facilities Maintenance, but during emergencies by the Fire Department, EH&S, and the building managers, to name a few. When completed, the Radio Communications Upgrade Project will provide Berkeley Lab with a reliable radio system that meets the new federally-mandated bandwidth and efficiency requirements and provides much-needed improvements in site coverage and expansion capability.

FOCUS ON SERVICE

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tion of the oil, either by condensation of vapors or by foreign matter entering the pump. Condensed vapors increase the vapor pressure of your oil, reducing the ultimate vacuum attainable. Foreign matter and some vapors form sludges with the oil that impair sealing and lubrication, and may eventually cause the pump to seize. Periodic oil changes will keep your pump operating efficiently and protect against failure.

Experience with your process will help determine how often an oil change is needed. For a system with low vapor and debris contamination, once a year is a good starting point. The Vacuum Pump Repair Shop has a limited stock of oils and may be consulted on oil-change and flushing procedures.

If a vacuum pump needs more than simple maintenance, the shop offers repair and rebuilding services for a large array of pumps. A rebuild lasts from 3 to 5 years "with a little bit of TLC" (oil change from time to time). A price list for rebuilds is available from the shop.

Plant maintenance technicians are available 24 hours a day for vacuum pump service, but manpower on the off-shifts is limited. Every effort will be made to work around research schedules, but try to schedule maintenance as far in advance as possible.

To arrange for routine maintenance or other service, contact the Work Request Center. But don't delay, because time slots are filling up fast. Quips Chism, "We don't leave any vacuums."

WOW

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As if to underscore the need for more participation, Miller and others on the WOW Steering Committee stepped down from their positions this past December, so that other employees could take the lead in the WOW program. Miller gives credit to all the people at Berkeley Lab who have helped get the WOW program launched, including

Fred Lothrop, Bob Camper, Klaus Berkner, Matt Kotowski from EH&S, and Don Van Acker from EH&S; the WOW Steering Committee members, both past and present—Lana Test, Gary Peterson, Chris Debernardi, Bill Chism, Bob Martin, Butch Holeman, Bob Tackitt, Ken Moeller, Tristi DeBlander, Steve Slusher, Bob Burnett; and all of the WOW coaches.

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